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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/987,064	11/13/2001	Yoshiyuki Kawano	204552018610	6348

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MORRISON & FOERSTER LLP
1650 TYSONS BOULEVARD
SUITE 300
MCLEAN, VA 22102

EXAMINER

SHEEHAN, JOHN P

ART UNIT	PAPER NUMBER
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1742

DATE MAILED: 01/28/2004

9

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/987,064

Applicant(s)

KAWANO ET AL.

Examiner

John P. Sheehan

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 October 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 9-21 is/are pending in the application.
- 4a) Of the above claim(s) 12 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 9-11 and 21 is/are rejected.
- 7) ☒ Claim(s) 13-20 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) Z. 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 9 to 11 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pinkerton et al. (Pinkerton, US Patent No. 5,395,459) taken in view of Japanese Patent Document No. 8-188803 (Japan '803, cited by the applicants in the IDS submitted November 13, 2001).

Pinkerton teaches producing Sm-Fe-N based alloy powder comprising, forming a melt of Sm and Fe, quenching the Sm-Fe melt to form a solidified body, comminuting the Sm-Fe body to form an alloy powder and nitriding the Sm-Fe alloy powder to form the Sm-Fe-N based alloy powder (column 1, line 45 to column 2, line 10).

NOTE: It is noted that a copy of the English translation of Japanese Patent Document No. 8-188803 referred to in this rejection and cited on the PTO Form 892 attached to this Office action was faxed to the applicants' attorney on June 12, 2003.

Japan '803 teaches a method of making a rare earth-transition metal alloy powder, including Sm-Fe (see Abstract paragraph 2 and the English language page 4, paragraph 008, lines 1 to 4), comprising neutralizing a mixed solution of a rare earth salt

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and a transition metal salt to co-precipitate the rare earth metal and the transition metal (Abstract, paragraph 2; English language translation, page 2, lines 4 to 6; and page 4, lines 10 to 12), heating the precipitated rare earth metal and transition metal at a temperature of 600 to 1000⁰C to form a composite oxide (Abstract, paragraph 2 and page 2, lines 5 and 6) and reducing the composite oxide in the presence of a reducing agent at a temperature of 700 to 1000⁰C to form the rare earth-transition metal powder (Abstract, paragraph 2 and page 2, lines 7 and 8). As an example of the reducing agent used in this step Japan '803 teaches calcium hydride as recited in applicants' claim 21 (English translation page 5, paragraph 0011, line 2). Japan '803 teaches that this process produces rare earth-transition metal alloy powders at a low cost without using any melting step (see the English language abstract), elimination of a pulverization step that reduces impurity levels and better control of the alloy composition (English translation, page 6, paragraph 0012). Although Japan '803 does not refer to the heating step to form the composite oxide as calcining, Japan '803 teaches that the temperature of this step is between 600 to 1000⁰C (English translation, page 2, lines 5 and 6). This temperature range overlaps applicants' *preferred* calcination temperature of 800 to 1300⁰C (applicants' specification, page 28, lines 5 and 6). In view of this, it is the Examiner's position that, although Japan '803 does not refer to this heating step as calcining, this step is in fact a calcining step. Thus, it is the Examiner's position that Japan '803 teaches the process for forming the rare earth-transition metal alloy recited in applicants' claims.

Pinkerton and the claims differ in that Pinkerton teaches forming the Sm-Fe alloy from a melt while the instant claims teach forming the Sm-Fe alloy by co-precipitation, calcination and reduction and diffusion.

However one of ordinary skill in the art at the time the invention was made would have motivated to prepare the alloy used in Pinkerton's nitriding process by the process taught by Japan '803 so as to eliminate the melting step and produce the alloy used in Pinkerton's nitriding process more economically; eliminate a pulverization step thus reducing impurity levels and better control of the alloy composition as taught by Japan '803 (Abstract and English translation, page 6, paragraph 0012).

Response to Arguments

3. Applicant's arguments filed October 6, 2003 have been fully considered but they are not persuasive.

Applicants argue that the Examiner has met the burden set forth in MPEP 2144.06 regarding substituting known equivalents for the same purpose. The Examiner is not persuaded. Although Japan '803 does not refer to the heating step to form the composite oxide as calcining, Japan '803 teaches that the temperature of this step is between 600 to 1000⁰C (English translation, page 2, lines 5 and 6). This temperature range overlaps applicants' *preferred* calcination temperature of 800 to 1300⁰C (applicants' specification, page 28, lines 5 and 6). In view of this, it is the Examiner's position that, although Japan '803 does not refer to this heating step as calcining, this step is in fact a calcining step as recited in the instant claims.

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Applicants argument that Japan '803 relates to the preparation of magnetostrictive materials while the instant claims are now directed to the preparation of permanent magnet materials and that "[p]ersons of ordinary skill in the art know that magnetostrictive material have different characteristics than do permanent magnet materials and that nitriding is not necessary" for magnetostrictive materials is not persuasive. Applicants have not pointed to any passage in Japan '803 that limits Japan '803's disclosure to magnetostrictive materials. It is the Examiner's position that Japan '803 is not limited to magnetostrictive materials but rather is directed to "powdery rare earth-transition metal alloy" (Title, Abstract, English language translation, page 2, line 2, etc.) Applicants have not provided any evidence to support their allegation that "[p]ersons of ordinary skill in the art know that magnetostrictive material have different characteristics than do permanent magnet materials and that nitriding is not necessary". Further, the Examiner is relying on Japan '803's for its teaching that the method of making the rare earth transition metal alloy powder, that is, Sm-Fe recited in the instant claims is known.

Applicants' argument that Japan '803 does not disclose the co-precipitation of Sm-Fe is not persuasive. In paragraph 0008 of the English language translation Japan '803 teaches that the disclosed process for making rare earth-transition metal powder is applicable to rare earths including Sm and transition metals including Fe. Thus Japan '803 is considered to teach that the disclosed process is applicable to the co-precipitation of Sm-Fe.

Applicants' argument that the Examiner has not provided any reason why one of ordinary skill would have eliminated the melting step in Pinkerton is not persuasive. As stated in the last Office action one of ordinary skill in the art would have been motivated to prepare the rare earth-transition metal for nitriding by the method taught by Japan '803 so as to eliminate the melting step used in Pinkerton's process and thus produce the rare earth-transition metal more economically (Abstract). Further, one of ordinary skill in the art would also be motivated to prepare the rare earth-transition material according to Japan '803's method so as to eliminate the pulverization step needed in Pinkerton's method (column 1, line 63), thus reducing impurity levels and for better control of the alloy composition as taught by Japan '803 (English translation page 6, paragraph 0012).

Allowable Subject Matter

4. Claims 13 to 20 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

5. The following is a statement of reasons for the indication of allowable subject matter: Regarding claims 13 to 20 the primary reason for indicating allowable subject matter is that none of the references alone nor in combination teach or suggest a process for producing a Sm-Fe-N permanent magnet material having: (1) the particle shape characteristics recited in claims 13 and 14; (2) the particle shape characteristics and the average particle size recited in claims 15 to 17; and (3) the particle shape

characteristics, the average particle size, coercive force and the residual magnetization values recited in claims 18 to 20.

Conclusion

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).


A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to John P. Sheehan whose telephone number is (571) 272-1249. The examiner can normally be reached on T-F (6:45-4:30) Second Monday Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on (571) 272-1244. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0651.



John P. Sheehan
Primary Examiner
Art Unit 1742

jps